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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/614,357	07/07/2003	Ravindra Kumar Sande	CML010411BA	7909
22917 7590 12/19/2006 MOTOROLA, INC. 1303 EAST ALGONQUIN ROAD IL01/3RD SCHAUMBURG, IL 60196			EXAMINER PHU, PHUONG M	
			ART UNIT	PAPER NUMBER
			2611	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
2 MONTHS		12/19/2006	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/614,357

Applicant(s)

SANDE ET AL.

Examiner

Phuong Phu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 2 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 November 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☒ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) 5-10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☒ Claim(s) 1-4 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 7/7/03
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

1. This Office Action is responsive to the Election filed on 11/6/06. Accordingly, claims 1-4 are elected; and claims 5-10 are withdrawn from further consideration.

Specification

2. The abstract of the disclosure is objected to because the abstract is less than 50 words.

Correction is required. See MPEP § 608.01(b).

3. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Claim Objections

4. Claims 1-4 are objected to because of the following informalities:

-Claim 1 recites the limitation "a first M-channel synthesis filter bank followed by a second L-channel analysis filter bank, for the case of $L=K*M$ where K is an integer, L is a down-sampling factor of the second analysis filter bank, and M is an up-sampling factor of the first synthesis filter bank". In the limitation, L, K and L are not definitely defined. It suggested that the phrase "where K is an integer" in the limitation in the limitation to be changed to --where L, K and M are positive non-zero integers--.

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-Claim 1 recites the equation " $Y_k(z) = \dots X_m(z)$ ". In the equation, parameters $Y_k(z)$, $H_{p,k(l*M-m)\bmod(k*M)}^l(z)$, $F_{p,m}(z)$, $X_m(z)$, k , z , l , m and p are not defined. Therefore, it is unclear about the interrelationship of the equation with the "first M-channel synthesis filter bank" and the "second L-channel analysis filter bank", and/or with the operation/function of the claimed "multiple sub-band processing system".

-Claim 2 recites the limitation "the combined filter bank includes M, K output demultiplexers". It is unclear about the interrelationship of the "M, K output demultiplexers" with the input(s) or the output(s) of the "first M-channel synthesis filter bank" and the second L-channel analysis filter bank" and/or with the operation/function of the claimed "multiple sub-band processing system".

-Claim 3 recites the limitation "The improved sub-band processing system". This limitation is suggested to be changed to --The improved multiple sub-band processing system-- in order to make it consistent with the term used in claims 1 and 2.

-Claim 3 recites the limitation "two low frequency clock distribution lines". It is unclear about the interrelationship of the "two low frequency clock distribution lines" with the "first M-channel synthesis filter bank" and the "second L-channel analysis filter bank", and/or with the operation/function of the claimed "multiple sub-band processing system".

-Similarly, in claim 4, parameters L , K , M , $Y_k(z)$, $H_{p,k(l*M-m)\bmod(k*M)}^l(z)$, $F_{p,m}(z)$, $X_m(z)$, k , z , l , m and p are not defined.

-Similarly, in claim 4, it is unclear about the interrelationship of the "equivalent filter" with the input(s) or output(s) of the "poly phase filters" and the "down-samplers".

Appropriate correction is required.

Allowable Subject Matter

5. Claims 1-4 would be allowable if rewritten or amended to overcome the objections, set forth in this Office action.

Conclusion

6. This application is in condition for allowance except for the above formal matters.

Prosecution on the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

A shortened statutory period for reply to this action is set to expire **TWO MONTHS** from the mailing date of this letter.


7. References 6792057, 7027942, 20030016772, 6426983, 7043512, 5568142, 5436940 and 20020156820 are cited because they are pertinent to the claimed invention.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phuong Phu whose telephone number is 571-272-3009. The examiner can normally be reached on M-F (8:00 AM - 4:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Phuong Phu
11/17/06

**PHUONG PHU
PRIMARY EXAMINER**

Phuong Phu
Primary Examiner
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